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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,413	10/09/2003	Susann Marie Keohane	AUS920030526US1	3447

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10/06/2005

Mr. Volel Emile
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EXAMINER

NGUYEN, HIEP T

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/682,413

Applicant(s)

KEOHANE ET AL.

Examiner

Hiep T. Nguyen

Art Unit

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/9/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-24 are presented for examination.

Claim Rejections - 35 USC § 112

2. Claims 9-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- (a) The intended means for "code means" used as elements of a computer program product, throughout the claims, is unclear. As best understood by the examiner, computer program product is basically consist of instruction code stored on a computer-readable medium. Should "code means" be replaced with –instruction codes--?

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
4. Claims 1, 9, and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Riedle, U.S. Patent No. 6,611,827 [hereafter, Riedle].
 - (a) As per claim 1: Riedle teaches [figure 3; col. 5, line 35 through col. 6, line 10] a method of servicing a plurality of read requests using a common mirror comprising the steps of:
 - i. Determining whether the amount of data requested by the read requests is within a user-configurable threshold [i.e., contiguous pages; see steps 104];
 - ii. Chaining the requests together if the amount of data requested by the requests is within the user configurable threshold [see step 106]; and
 - iii. sending the chained requests to the common mirror for servicing [see step 110].

Art Unit: 2187

- (b) As per claim 9: the claimed computer program product basically encompasses of instruction codes for carrying out the claimed steps in claim 1. Accordingly, claim is also rejected for the same reason as set forth for claim 1.
- (c) As per claim 17: the claimed system basically encompasses the necessary elements for carrying the claimed steps in claim 1. Accordingly, claim 17 is also rejected for the same reason as set forth for claim 1.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. Claims 2-8, 10-16, and 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riedle, as applied to claims 1 and 9, and further in view of well-known feature of which Official Notice is hereby taken.
- (a) As per claims 2 and 18:
- i. Riedle teaches a method and/or system as mentioned in the rejection of claims 1 and 17.
 - ii. Riedle, however, does not teaches that the chained requests are sent to a least used mirror in a set of mirrors.
 - iii. It has been known and commonly practiced in the pertinent art to select a least busy or used disk or drive among a plurality of disks or drives in a storage system for servicing requests in order to balance the work load among the disk or drives. Thus, improving the over performance of the system.
 - iv. One having ordinary skill in the art, who is familiar with such well-known feature, looks at the teaching of Riedle, would lead he or she to further incorporate the well-known feature into that of Riedle. This is because they are both directed to

DASD storage accessing. Furthermore, one having ordinary skill in art would readily recognize that by doing so the Riedle system performance would be further improved by balancing the workload among the drives, as taught by the well-known teaching.

- v. Accordingly, it would have been obvious to one having ordinary skill in the art, who has the above-mentioned two teaching in front of him or her, at the time the invention was made, to further configure the Riedle storage controller to send the chained/modified commands/requests to a least used/busy mirror/disk. The ability to balance the workload among the drives or mirrors provide sufficient suggestion and motivation to one having ordinary skill in the art at the time the invention was made to do such further configuration in the Riedle storage controller.

(b) As per claims 3-4 and 19-20: the further claimed limitations are directly taught by Riedle since Riedle ascertains that the requests are directed to contiguous pages [see again step 104].

(c) As per claims 5-8, 13-16, and 21-24:


- i. The claimed method and/or system basically encompass a similar scope as that of claims 1-4, 9-12, and 17-21. In claims 5-8, 13-16, and 21-24, the requests are not chained prior to sending the requests to a mirror, but instead the second request is received and determined whether the request should be sent to the same mirror that the first request was sent, while the first request is being serviced.
- ii. Sending to the same disk or drive a subsequent request that request for related information or information stored adjacent to a previous request prior to finishing the service of the previous request has also been known and commonly practiced in the pertinent art to reduce the overall seek and rotational latency.

Art Unit: 2187

- iii. Accordingly, it would have been obvious to one having ordinary skill in the art, who is familiar with such latency reduction feature, to further configure the Riedle storage system to send a subsequent request to the same disk or drive or mirror that is servicing the previous request if such subsequent request is directed a contiguous page of that in the previous request. The ability to reduce the overall seeks and rotational latency provides sufficient suggestion and motivation to one having ordinary skill in the art to do such further configuration in the Riedle system.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep T. Nguyen whose telephone number is (571) 272-4197. The examiner can normally be reached on Monday-Friday from 9:30 am to 6:00 pm.
8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Hiep T. Nguyen
Primary Examiner
Art Unit 2187

HTN